

# BROADENING SPACE HORIZONS: NATIVE AMERICAN GIRLS IN SPACE

## Czarina Salido

**I**t's exciting to take young girls on a passenger plane for the first time. Most of the students I work with for my nonprofit organization, *Taking Up Space*, have never left their home state before, and the experience of going to an airport and climbing into the sky is both scary and thrilling for them. Less than a week later, I was watching those same girls walk across a stage under a Saturn V rocket. Filled with a new confidence, they were awarded wings by an astronaut, having completed an intensive course of training in spaceflight simulators. At that moment, flying in a passenger jet seemed tame by comparison.

*Taking Up Space* works to broaden the horizons of its young participants and help them to become the person they want to be. America faces a serious educational deficit in retaining middle school girls' interest in STEM (Science, Technology, Engineering and Math) and related areas. For too long, women and people of color have been underrepresented in these kinds of careers and opportunities.

According to the Girl Scout Research Institute, "Girls start losing interest in math and science during middle school ... Women account for about only 20 percent of the bachelor's degrees in engineering, computer science, and physics." Due to this trend, the U.S. faces an overall reduction in our future science, technology, and educational workforce, whereas globally the reverse has occurred. For women of color, the numbers are even lower, and NASA reports indicate the number of such engineers in their employ remains around 5.5 percent. NASA has a number of admirable initiatives to raise that number, but the agency also reports that many of the women who do make it in feel isolated, without effective mentorship to help them feel welcomed, and some do not stay long.

I've experienced something similar myself, and I remember feeling that I couldn't do the same things the boys could do when I was in elementary school. I thought I couldn't be as good at math and science. I didn't really know why, which made it even more unsettling. As a Hispanic female, I had to fight to overcome numerous negative assumptions and obstacles, but the challenges helped me develop a greater sense of purpose. My teachers always stressed the importance of learning science and mathematics, so I joined the Mathematics, Engineering, and Science Achievement (MESA) group in high school. Though it was a struggle, I graduated and went on to college to study physics. Compared to some of my peers, I was lucky to overcome those negative feelings and to have some great teachers who would become mentors.



Czarina Salido with young participants  
at the Yaqui reservation

Credit: Geoffrey Notkin

Knowing about these issues firsthand, I wanted to provide assistance to other young women. In my Arizona community, there were many successful science-themed groups for girls, but I found none that specifically encouraged young indigenous girls. Native American youth face unique hurdles in education. A number of reports have indicated that they are less likely than any other group to graduate from high school, placing these students at a serious disadvantage when it comes to career choices. That was the genesis of *Taking Up Space*.

We work with Native American students, primarily girls from the PascuaYaqui tribe from the Tucson, Arizona area. Many of these students soak up STEM subjects with excitement. We create activities for them that are collaborative, because they generally enjoy working with their friends. These are hands-on activities; projects that involve making and testing things that may benefit them more than textbook work. The students are encouraged to experiment and come up with their own creative solutions as inventors have done for centuries.



Participants inside a cockpit at Atlanta airport  
Credit: Taking Up Space

Recently, three students from the Pascua Yaqui tribe presented a report about their experiences at their tribal council. It was moving to see the emotional reception that these children received. The council members expressed how proud they were, and how inspiring these youths were to both adults and children. They praised their courage and were supportive of their interests: “This gives me great hope to see the first Yaqui on the Moon, so hopefully you’ll get there, or Mars, or anywhere else you want to go,” one said. They were lauded as role models and ambassadors by many in their tribe.

Growing up in Tucson, with its dark skies, internationally known space-themed university courses, and world-class observatories, has instilled in me a lifelong sense of wonder and curiosity. It’s one of the best places in the world to appreciate the immensity of the universe and to also learn about it from experts. I hope these students will continue to feel that sense of wonder.

It’s impossible to say whether these girls will become astronauts or rocket engineers, but I know that providing these opportunities is like throwing a stone in a pond: the ripples touch everywhere. These students now understand the importance of setting goals, and even if those goals change, they won’t be afraid of continuing to make progress. They have a new confidence and self-esteem that will benefit them throughout the course of their lives, and their horizons have been broadened.

If we hope to create a society that believes in the benefits of space exploration, and science in general, we have to engage young people. Students who learn to appreciate STEM subjects may not pursue STEM careers, but they will know why they are important. Just as the National Space Society is a positive advocate for a spacefaring future, involving young people from many cultures in space sciences through personal experience will help create the kind of world—and worlds beyond—of which we dream. 🌌